Fishery Bulletin Index
Volume 95 (1–4), 1997
List of titles

95(1)

1 Individual variation in growth and development during the early life stages of winter flounder, *Pleuronectes americanus*, by Douglas F. Bertram, Thomas J. Miller, and William C. Leggett

11 Archeological evidence of large northern bluefin tuna, *Thunnus thynnus*, in coastal waters of British Columbia and northern Washington, by Susan J. Crockford

25 Dietary overlap of juvenile fall- and spring-run chinook salmon, *Oncorhynchus tshawytscha*, in Coos Bay, Oregon, by Joseph P. Fisher and William G. Pearcy

39 Fish age determined from length: an evaluation of three methods using simulated red snapper data, by Phillip C. Goodyear

47 The life history and stock separation of silver kob, *Argyrosomus inodorus*, in South African waters, by Marc H. Griffiths

68 Estimates of tag-reporting and tag-shedding rates in a large-scale tuna tagging experiment in the western tropical Pacific Ocean, by John Hampton

80 Use of gonad indices to estimate the status of reproductive activity of female swordfish, *Xiphias gladius*: a validated classification method, by Michael G. Hinton, Ronald G. Taylor, and Michael D. Murphy

85 Persistent spatial and temporal abundance patterns for late-stage copepodites of *Centropages hamatus* (Copepoda: Calanoida) in the U.S. northeast continental shell ecoysystem, by Joseph Kane

99 Estimating the annual proportion of nonspawning adults in New Zealand hoki, *Macruronus novaezelandiae*, by Mary E. Livingston, Marianne Vignaux, and Kathy A. Schofield

114 Structure and dynamics of the fishery harvest in Broward County, Florida, during 1989, by James E. McKenna Jr.

126 Year-class twinning in sympatric seasonal spawning populations of Atlantic herring, *Clupea harengus*, by Ian H. McQuinn

137 Nursery habitat in relation to production of juvenile pink snapper, *Pristipomoides filamentosus*, in the Hawaiian Archipelago, by Frank A. Parrish, Edward E. DeMartini, and Denise M. Ellis

149 Application of high-breakdown robust regression to tuned stock assessment models, by Victor R. Restrepo and Joseph E. Powers

161 Growth and survival of O+ English sole, *Pleuronectes vetulus*, in estuaries and adjacent nearshore waters off Washington, by Yunbing Shi, Donald R. Gunderson, and Patrick J. Sullivan

174 Mitochondrial DNA diversity in and population structure of red grouper, *Epinephelus morio*, from the Gulf of Mexico, by Linda R. Richardson and John R. Gold

180 Entanglement of California sea lions, *Zalophus californianus californianus*, in fishing gear in the central-northern part of the Gulf of California, Mexico, by Alfredo Zavala-González and Eric Mellink

95(2)

187 Birthdate analysis and its application to the study of recruitment of the Atlanto-Iberian sardine, *Sardina pilchardus*, by Federico Álvarez and Francisco Alemany

195 Demersal fish assemblages of the northeastern Chukchi Sea, Alaska, by Willard E. Barber, Ronald L. Smith, Mark Vallarino, and Robert M. Meyer

209 Evaluations of the Nordmøre grid and secondary bycatch-reducing devices (BRD's) in the Hunter River prawn-trawl fishery, Australia, by Matt K. Broadhurst, Steven J. Kennelly, John W. Watson, and Ian K. Workman

219 Spatial patterns in the dynamics of slope rockfish stocks and their implications for management, by Donald R. Gunderson

231 Fecundity and egg weight in English sole, *Pleuronectes vetulus*, from Puget Sound, Washington: influence of nutritional status and chemical contaminants, by Lyndal L. Johnson, Sean Y. Sol, Daniel P. Lomax, Gregory M. Nelson, Catherine A. Sloan, and Edmundo Casillas

250 The Loop Current and the abundance of larval *Cubiceps pauciradiatus* (Pisces: Nomeidae) in the Gulf of Mexico: evidence for physical and biological interaction, by John Lamkin

267 Influence of release season on size-dependent survival of cultured striped mullet, *Mugil cephalus*, in a Hawaiian estuary, by Kenneth M. Leber, H. Lee Blankenship, Steve M. Arce, and Nathan P. Brennan

280 Correcting annual catches from seasonal fisheries for use in virtual population anlysis, by Christopher M. Legault, and Nelson M. Ehrhardt

293 Estimates of tag loss from double-tagged sablefish, *Anoplopoma fimbria*, by William H. Lenarz and Franklin R. Shaw

300 Aerial survey of giant bluefin tuna, *Thunnus thynnus*, in the Great Bahama Bank, Straits of Florida, 1995, by Molly Lutcavage, Scott Kraus, and Wayne Hoggard

311 A population profile for Atlantic hagfish, *Myxine glutinosa* (L.), in the Gulf of Maine. Part I: Morphometrics and reproductive state, by Frederic Martini, John B. Heiser, and Michael P. Lesser

321 The reproductive cycle and sexual maturity of Atka mackerel, *Pleurogrammus monopterygius*, in Alaska Waters, by Susanne F. McDermott, and Sandra A. Lowe

334 Prey occurrence in pantropical spotted dolphins, *Stenella attenuata*, from the eastern tropical Pacific, by Kelly M. Robertson and Susan J. Chivers

349 Age, growth, and sexual maturity of shovelnose guitarfish, *Rhinobatos productus* (Ayres), by Maryellen Timmons and Richard N. Bray

360 Food habits and energy values of prey of striped marlin, *Tetrapturus audax*, off the coast of Mexico, by Leonardo A. Abitia-Cardenas, Felipe Galvan-Magaña, and Jesus Rodriguez-Romero

369 Note on plankton and cold-core rings in the Gulf of Mexico, by Douglas C. Biggs, Robert A. Zimmerman, Rebeca Gasca, Eduardo Suárez-Morales, Ivan Castellanos, and Robert R. Leben

376 Physical environment and recruitment variability of Atlantic herring, *Clupea harengus*, in the Gulf of Maine, by Mark A. Lazzari, David K. Stevenson, and Stephen M. Ezzy

386 In vitro digestibility of some prey species of dolphins, by Keiko Sekiguchi and Peter B. Best

394 Development of laboratory-reared sheepshead, *Archosargus probatocephalus* (Pisces: Sparidae), by John W. Tucker Jr. and Sabine R. Alshuth

95(3)

403 Optimal sampling for estimating the size structure and mean size of abalone caught in a New South Wales fishery, by Neil L. Andrew and Yong Chen

414 Seasonal and ontogenetic changes in distribution and abundance of smooth flounder, *Pleuronectes putnami*, and winter flounder, *Pleuronectes americanus*, along estuarine depth and salinity gradients, by Michael P. Armstrong

431 Energetics of larval red drum, *Sciaenops ocellatus*. Part II: Growth and biochemical indicators, by Ross I. Brightman, Joseph J. Torres, Joseph Donnelly, and M. Elizabeth Clarke

445 Retrospective analysis of virtual population estimates for Atlantic menhaden stock assessment, by Steven X. Cadrin and Douglas S. Vaughan

456 Maturation and reproductive seasonality in bonefish, *Albula vulpes*, from the waters of the Florida Keys, by Roy E. Crabtree, Derke Snodgrass, and Christopher W. Harnden

466 Seasonal movement of offshore American lobster, *Homarus americanus*, tagged along the eastern shore of Cape Cod, Massachusetts, by Bruce T. Estrella and Thomas D. Morrissey

477 Daily variability in abundance of larval fishes inside Beaufort Inlet, by William F. Hettler Jr., David S. Peters, David R. Colby, and Elisabeth H. Laban

494 Effects of geography and bathymetry on growth and maturity of yellowfin sole, *Pleuronectes asper*, in the eastern Bering Sea, by Daniel G. Nichol

504 Habitat models for juvenile pleuronectids around Kodiak Island, Alaska, by Brenda L. Norcross, Franz-Josef Müter, and Brenda A. Holladay

521 Daily growth increments in otoliths of juvenile weakfish, *Cynoscion regalis*: experimental assessment of changes in increment width with changes in feeding rate, growth rate, and condition factor, by Richard Paperno, Timothy E. Targett, and Paul A. Grecay

530 Daily age and growth of larval and early juvenile Spanish mackerel, *Scomberomorus maculatus*, from the South Atlantic Bight, by John S. Peters and David J. Schmidt

540 Use of stable isotopes to assess groups of king mackerel, *Scomberomorus cavalla*, in the Gulf of Mexico and southeastern Florida, by Lynn A. Roelke and Luis A. Cifuentes

552 Effectiveness of four industry-developed bycatch reduction devices in Louisiana's inshore waters, by Donna R. Rogers, Barton D. Rogers, Janaka A. de Silva, and Vernon L. Wright

566 Global population structure of yellowfin tuna, *Thunnus albacares*, inferred from allozyme and mitochondrial DNA variation, by Robert D. Ward, Nicholas G. Elliott, Bronwyn H. Innes, Adam J. Smolenski, and Peter M. Grewe

576 An estimate of orange roughy, *Hoplostethus atlanticus*, biomass using the daily fecundity reduction method, by John R. Zeldis, R. I. Chris Francis, Malcolm R. Clark, Jonathan K. V. Ingerson, Paul J. Grimes, and Marianne Vignaux

598 Maturity and fecundity of arrowtooth flounder, *Atheresthes stomias*, from the Gulf of Alaska, by Mark Zimmermann

612 The reproductive biology and early life stages of *Podothecus sachi* (Pisces: Agonidae), by Hiroyuki Munehara

620 Age and growth of totoaba, *Totoaba macdonaldi* (Sciaenidae), in the upper Gulf of California, by Martha J. Román-Rodríguez, and M. Gregory Hammann

629 Mark retention and growth of jet-injected juvenile marine fish, by John F. Thedinga, Adam Moles, and Jeffrey T. Fujioka

95(4)

637 Yield-per-recruit analysis and management strategies for Atlantic croaker, *Micropogonias undulatus*, in the Middle Atlantic Bight, by Luiz R. Barbieri, Mark E. Chittenden Jr., and Cynthia M. Jones

646 Daily and seasonal activity patterns of female cunner, *Tautogolabrus adspersus* (Labridae), in Newfoundland, by Carole Bradbury, John M. Green, and Michael Bruce-Lockhart

653 The composite square-mesh panel: a modification to codends for reducing unwanted bycatch and increasing

catches of prawns throughout the New South Wales oceanic prawn-trawl fishery, by Matt K. Broadhurst and Steven J. Kennelly

665 Movements, feeding periods, and daily ration of piscivorous young-of-the-year bluefish, *Pomatomus saltatrix*, in the Hudson River estuary, by Jeffrey A. Buckel and David O. Conover

680 Population biology and harvest of the coral reef surgeonfish *Acanthurus lineatus* in American Samoa, by Peter C. Craig, J. Howard Choat, Lynda M. Axe, and Suesan Saucerman

694 Spatial and temporal variation in age and growth of king mackerel, *Scomberomorus cavalla*, 1977–1992, by Douglas A. DeVries and Churchill B. Grimes

709 Age, growth, distribution, and food habits of recently settled white seabass, *Atractoscion nobilis*, off San Diego County, California, by Christopher J. Donohoe

722 Analysis of diet and feeding strategies within an assemblage of estuarine larval fish and an objective assessment of dietary niche overlap, by Daniel J. Gaughan and Ian C. Potter

732 Changes in the life history of red porgy, *Pagrus pagrus*, from the southeastern United States, 1972–1994, by Patrick J. Harris and John C. McGovern

748 Reproductive success of Pacific herring, *Clupea pallasi*, in Prince William Sound, Alaska, six years after the *Exxon Valdez* oil spill, by Scott W. Johnson, Mark G. Carls, Robert P. Stone, Christine C. Brodersen, and Stanley D. Rice

762 Maximum population growth rates and recovery times for Atlantic cod, *Gadus Morhua*, by Ransom A. Myers, Gordon Mertz, and P. Stacey Fowlow

773 Age and growth of larval and juvenile Atlantic croaker, *Micropogonias undulatus*, from the Middle Atlantic Bight and estuarine waters of Virginia, by Stephen W. Nixon and Cynthia M. Jones

785 Temporal and spatial spawning patterns of the Atlantic butterfish, *Peprilus triacanthus*, in the South and Middle Atlantic Bights, by Teresa Rotunno and Robert K. Cowen

800 A comparison of three genetic methods used for stock discrimination of orange roughy, *Hoplostethus atlanticus*: allozymes, mitochondrial DNA, and random amplified polymorphic DNA, by Peter J. Smith, Peter G. Benson, and S. Margaret McVeagh

812 Survival of chinook salmon, *Oncorhynchus tshawytscha*, from a spawning tributary of the Rakaia River, New Zealand, in relation to spring and summer mainstem flows, by Martin J. Unwin

826 A shift in distribution of humpback whales, *Megaptera novaeangliae*, in response to prey in the southern Gulf of Maine, by Mason Weinrich, Malcolm Martin, Rachel Griffiths, Jennifer Bove, and Mark Schilling

837 Temporal variation in sexual maturity and gear-specific sex ratio of the vermilion snapper, *Rhomboplites aurorubens*, in the South Atlantic Bight, by Boxian Zhao and John C. McGovern

849 A polyphasic growth function for the endangered Kemp's ridley sea turtle, *Lepidochelys kempii*, by Milani Chaloupka and George R. Zug

857 Age determination of larval strombid gastropods by means of growth increment counts in statoliths, by Félix A. Grana-Raffucci and Richard S. Appeldoorn

863 Bias in Chapman-Robson and least-squares estimators of mortality rates for steady-state populations, by Michael D. Murphy

869 The effects of formalin and freezing on ovaries of albacore, *Thunnus alalunga*, by Darlene Ramon and Norm Bartoo

873 Short-term retention of coded wire and internal anchor tags in juvenile common snook, *Centropomus undecimalis*, by Julie E. Wallin, John M. Ransier, Sondra Fox, and Robert H. McMichael Jr.

Fishery Bulletin Index
Volume 95 (1–4), 1997
List of authors

Abitia-Cardenas, Leonardo A. 360
Alemany, Francisco 187
Alshuth, Sabine R. 394
Álvarez, Federico 187
Andrew, Neil L. 403
Appeldoorn, Richard S. 857
Arce, Steve M. 267
Armstrong, Michael P. 414
Axe, Lynda M. 680

Barber, Willard E. 195
Barbieri, Luiz R. 637
Bartoo, Norm 869
Benson, Peter G. 800
Bertram, Douglas F. 1
Best, Peter B. 386
Biggs, Douglas C. 369
Blankenship, H. Lee 267
Bove, Jennifer 826
Bradbury, Carole 646
Bray, Richard N. 349
Brennan, Nathan P. 267
Brightman, Ross I. 431
Broadhurst, Matt K. 209, 653
Brodersen, Christine C. 748
Bruce-Lockhart, Michael 646
Buckel, Jeffrey A. 665

Cadrin, Steven X. 445
Carls, Mark G. 748
Casillas, Edmundo 231
Castellanos, Ivan 369
Chaloupka, Milani 849
Chen, Yong 403
Chittenden, Mark E., Jr. 637
Chivers, Susan J. 334
Choat, Howard J. 680
Cifuentes, Luis A. 540
Clark, Malcolm R. 576
Clarke, M. Elizabeth 431
Colby, David R. 477
Conover, David O. 665
Cowen, Robert K. 785
Crabtree, Roy E. 456
Craig, Peter C. 680
Crockford, Susan J. 11

de Silva, Janaka A. 552
DeMartini, Edward E. 137
DeVries, Douglas A. 694
Donnelly, Joseph 431
Donohoe, Christopher J. 709

Ehrhardt, Nelson M. 280
Elliott, Nicholas G. 566
Ellis, Denise M. 137
Estrella, Bruce T. 466
Ezzy, Stephen M. 376

Fisher, Joseph P. 25
Fowlow, P. Stacey 762
Fox, Sondra 873
Francis, R. I. Chris 576
Fujioka, Jeffrey T. 629

Galvan-Magaña, Felipe 360
Gasca, Rebeca 369
Gaughan, Daniel J. 722
Gold, John R. 174
Goodyear, C. Phillip 39
Grana-Raffucci, Félix A. 857
Grecay, Paul A. 521
Green, John M. 646
Grewe, Peter M. 566
Griffiths, Marc H. 47
Griffiths, Rachel 826
Grimes, Churchill B. 694
Grimes, Paul J. 576
Gunderson, Donald R. 161, 219

Hammann, M. Gregory 620
Hampton, John 68
Harnden, Christopher W. 456
Harris, Patrick J. 732
Heiser, John B. 311
Hettler, William F., Jr. 477
Hinton, Michael G. 80
Hoggard, Wayne 300
Holladay, Brenda A. 504

Ingerson, Jonathan K. V. 576
Innes, Bronwyn H. 566

Johnson, Lyndal L. 231
Johnson, Scott W. 748
Jones, Cynthia M. 637, 773

Kane, Joseph 85
Kennelly, Steven J. 209, 653
Kraus, Scott 300

Laban, Elisabeth H. 477
Lamkin, John 250
Lazzari, Mark A. 376
Leben, Robert R. 369
Leber, Kenneth M. 267
Legault, Christopher M. 280
Leggett, William C. 1
Lenarz, William H. 293
Lesser, Michael P. 311
Livingston, Mary E. 99
Lomax, Daniel P. 231
Lowe, Sandra A. 321
Lutcavage, Molly 300

Martin, Malcolm 826
Martini, Frederic 311
McDermott, Susanne F. 321
McGovern, John C. 732, 837
McKenna, James E., Jr. 114
McMichael, Robert H. 873
McQuinn, Ian H. 126
McVeagh, S. Margaret 800
Mellink, Eric 180
Mertz, Gordon 762
Meyer, Robert M. 195
Miller, Thomas J. 1
Moles, Adam 629
Morrissey, Thomas D. 466
Munehara, Hiroyuki 612
Murphy, Michael D. 80, 863
Müter, Franz-Josef 504
Myers, Ransom A. 762

Nelson, Gregory M. 231
Nichol, Daniel G. 494
Nixon, Stephen W. 773
Norcross, Brenda L. 504

Paperno, Richard 521
Parrish, Frank A. 137
Pearcy, William G. 25
Peters, David S. 477
Peters, John S. 530
Potter, Ian C. 722
Powers, Joseph E. 149

Ramon, Darlene 869
Ransier, John M. 873
Restrepo, Victor R. 149
Rice, Stanley D. 748
Richardson, Linda R. 174
Robertson, Kelly M. 334
Rodriguez-Romero, Jesus 360
Roelke, Lynn A. 540
Rogers, Barton D. 552
Rogers, Donna R. 552
Román Rodríguez, Martha J. 620
Rotunno, Teresa 785

Saucerman, Suesan 680
Schilling, Mark 826
Schmidt, David J. 530
Schofield, Kathy A. 99
Sekiguchi, Keiko 386
Shaw, Franklin R. 293
Shi, Yunbing 161
Sloan, Catherine A. 231

Smith, Ronald L. 195
Smith, Peter J. 800
Smolenski, Adam J. 566
Snodgrass, Derke 456
Sol, Sean Y. 231
Stevenson, David K. 376
Stone, Robert P. 748
Suárez-Morales, Eduardo 369
Sullivan, Patrick J. 161

Targett, Timothy E. 521
Taylor, Ronald G. 80
Thedinga, John F. 629
Timmons, Maryellen 349
Torres, Joseph J. 431
Tucker, John W., Jr. 394

Unwin, Martin J. 812

Vallarino, Mark 195
Vaughan, Douglas S. 445
Vignaux, Marianne 99, 576

Wallin, Julie E. 873
Ward, Robert D. 566
Watson, John W. 209
Weinrich, Mason 826
Workman, Ian K. 209
Wright, Vernon L. 552

Zavala-González, Alfredo 180
Zeldis, John R. 576
Zhao, Boxian 837
Zimmerman, Robert A. 369
Zimmermann, Mark 598
Zug, George R. 849

Fishery Bulletin Index
Volume 95 (1–4), 1997
List of subjects

Abalone, blacklip 403
Abundance
  cigarfish, bigeye 250
  copepod 85
  demersal fishes 195
  flounder
    smooth 414
    winter 414
  larval fishes 477
  rockfish 219
  seabass, white 709
  snapper, pink 137
  tuna, bluefin 300
Acanthurus lineatus - *see* Surgeonfish, bluebanded
Activity 646
Afurcagobius suppositus 722
Age at sexual maturity - *see also* Maturity
  bonefish 456
  cod 762
  mackerel, Atka 321
  rockfish 219
  snapper, vermilion 837
  sole, yellowfin 494
Age determination 39
  butterfish 785
  conch 857
  croaker, Atlantic 773
  guitarfish, shovelnose 349
  hoki, New Zealand 99
  mackerel
    king, 694
    Spanish 530
  sardine, Atlanto-Iberian 187
  seabass, white 709
  totoaba 620
Age validation 530
Alaska
  Aleutian islands 321
  Bering Sea 494
  Chukchi Sea 195
  Kodiak Island 504
  Prince William Sound 748
Albula vulpes - *see* Bonefish
Albulidae - *see* Bonefish
Allozyme 566, 800
Annual proportion spawning 99
Anoplopoma fimbria - *see* Sablefish
Anoplopomatidae - *see* Sablefish
Archeological evidence 11
Archosargus probatocephalus - *see* Sheepshead
Argyroseomus inodorus - *see* Kob, silver
Artificial digestion 386
Assessment 267
Atheresthes stomias - *see* Flounder, arrowtooth
Atlantic Ocean 837, 566
Atractoscion nobilis - *see* Seabass, white
Australia 209, 722
  New South Wales 403, 653

Bahama Bank 300
Balaenopteridae - *see* Humpback whale
Baleen, 826
Bathymetry 494
Biochemical indicators 432
Biomass 576
Birthdate analysis 187
Blenniidae 722
Bluefish 665
Bonefish 456
Bootstrapping 722
Brevoortia tyrannus - *see* Menhaden, Atlantic
British Columbia 11
Butterfish, Atlantic 785
Bycatch
  reducing devices, secondary 209
  reduction 209, 552, 653

California 293, 349, 709
Catch-curve analysis "
Centropages hamatus 85
Centropagidae - *see* Copepod
Centropomis undecimalis - *see* Snook, common
Cheloniidae - *see* Turtles, sea
Chesapeake Bay 653, 773
Cigarfish, bigeye 250
Clupea
  harengus - *see* Herring, Atlantic
  pallasi - *see* Herring, Pacific
Clupeidae - *see* Herring, Menhaden, or Sardine
Cod, Atlantic 762
Cold-core rings 369
Commercial fishery 114
Competition 722
  wild and hatchery-reared salmon 25
  winter and smooth flounder 414
Conch
  milk 857
  queen 857
Condition factor 231, 521, 598, 680
Contaminants, chemical 231
Copepod 85
Croaker, Atlantic 637, 773
Cubiceps pauciradiatus - *see* Cigarfish, bigeye
Cunner 646
Cynoscion regalis - *see* Weakfish

Daily
  growth 187
  ration 665
Delphinidae - *see* Dolphin
Demersal fish assemblages 195
Density dependence 161
Depth 504
  gradient 414
Development
  flounder, winter 1
  sheepshead, 394
Diel 665
Diet - *see* Food habits
Diet analysis 386
Dietary overlap
  fall versus spring chinook salmon, juvenile 25
Dietary niche overlap 722
Direct assessment 300
Distribution
  cigarfish, bigeye 250
  copepod, 85
  demersal fishes, 195
  flounder
    smooth 414
    winter 414
  pleuronectids, juvenile 504
  seabass, white 709
  tuna, bluefin 11
  whale, humpback 826
DNA, mitochondrial
  grouper, red 174
  roughy, orange 800
  tuna, yellowfin 566
Dolphin, pantropical spotted 334
Double tagging 68, 293
Drift macrophytes 709
Drum, red 431

Eastern tropical Pacific 334
Ecology 311
Egg
  development 394
  production 231, 576
  weight 231
Elasmobranch 349
Elopomorpha 456
Energetics 431
Enoploteuthidae 334
Entanglement, incidence of 180
Epinephelinae - *see* Grouper
Epinephelus morio - *see* Grouper, red
Estradiol 17-ß 231
Estuarine 722
  and Atlantic croaker 773
  and juvenile chinook salmon 25
  English sole and nursery habitat 161
  flounder habitat 414
Extralimital fish records 11
Exxon Valdez oil spill 748

Favonigobius lateralis 722
Fecundity

bonefish 456
flounder, arrowtooth 598
roughy, orange 576
sole, English 231
Feeding - *see also* Food habits
ecology 722
chronology 665
rates 521
strategy 722
Fish larvae 722
Fish marking 629
Fishermen 114
Fishery
artisanal 680
harvest 114
Louisiana shrimp 532
management
abalone, blacklip 403
croaker, Atlantic 637
guitarfish, shovelnose 349
menhaden, Atlantic 445
rockfish stocks 219
prawn-trawl 653
production 137
subsistence 680
Fishing gear 180
Flatfish 231, 504
Florida 456, 540, 873
Broward county 114
Flounder
arrowtooth 598
smooth 414
winter 1, 414
Flow variability 812
Food habits
bluefish 665
dolphin 386
pantropical spotted 334
marlin, striped 360
salmon, chinook 25
seabass, white 709
Food web 540
Formalin 869
Freezing 869
Frontal areas, larval abundance in 250

Gadidae - *see* Cod
Gadus morhua - *see* Cod, Atlantic
Genetic studies
grouper, red 174
polymorphism 566
tuna, yellowfin 566
Geography 494
Gobiidae 722
Gonadal development 456
Gonadosomatic index 80, 456, 598
Grouper, red 174
Growth
butterfish 785
conch 857
croaker, Atlantic 773
drum, red 431
flounder, winter 1
guitarfish, shovelnose 349
halibut, Pacific 629
herring, Atlantic 126
juvenile fish 629
mackerel
king 694
Spanish 530
mullet, striped 267
porgy, red 732
rockfish 219
sablefish 629
sheepshead 394
sole
English 161, 231
rock 629
yellowfin 494, 629
totoaba 620
turtle, Kemp's ridley sea 849
variation in 1
Growth rates 521, 530, 709
Growth overfishing 637
Guitarfish, shovelnose 349
Gulf
of Alaska 321, 598
of California 180, 360, 620
of Maine 311, 376, 826
of Mexico 174, 250, 369, 540
of St. Lawrence 126

Habitat use 414
Habitat 219
models 504
nursery 137, 709
Hagfish 311
Halibut, Pacific 504
Haliotidae - *see* Abalone
Haliotis rubra - *see* Abalone, blacklip
Harvest 114
Hatchery release 267
Hawaii 267
Hawaiian Archipelago 137
Hepatosomatic index 598
Herring
Atlantic 126, 376, 826
Pacific 748
Hexigrammidae - *see* Mackerel
Hippoglossoides elassodon - *see* Sole, flathead
Hippoglossus stenolepis - *see* Halibut, Pacific
Histology
bonefish 456
effects of marking on 629
flatfish 629
flounder, arrowtooth 598
hoki, New Zealand 99
mackerel, Atka 321
swordfish 80
Hoki, New Zealand 99
Homarus americanus - *see* Lobster, American
Homing 466
Hoplostethus atlanticus - *see* Roughy, orange

Iberian peninsula 187
Ichthyoplankton 722
Indian Ocean 566
Inshore waters 552
Interannual variability 219
Isotopes
stable carbon 540
stable nitrogen 540
Istiophoridae - *see* Marlin
Jeffreys Ledge 826
Jet-injected marking 629
Juvenile studies
and jet-injected marking 629
croaker, Atlantic 773
flounder, winter 1
mackerel, Spanish 530
pleuronectids 504
salmon, chinook 25
sardine, Atlanto-Iberian 187
seabass, white 709
sheepshead 394
snapper, pink 137
snook, common 873
sole, English 161
weakfish 521

Kob, silver 47

Labridae - *see* Cunner
Lapillus 773
Larval studies
cigarfish, bigeye 250
conch, 857
croaker, Atlantic 773
drum, red 431
mackerel, Spanish 530
flounder, winter 1
sheepshead 394
Lactate dehydrogenase (LDH) activity 431
Least-squares method149
Length at age 494
Length at sexual maturity 321, 456, 494
Lepidochelys kempii - *see* Turtle, Kemp's ridley sea
Life history 837
bonefish, 456
kob, silver 47
porgy, red 732
surgeonfish 680
Lipid 431
Lobster, American 466
Loop Current 250, 369, 540
Louisiana 552
Low-frequency reproduction 99
Lutjanidae - *see* Snapper
Lutjanus campechanus - *see* Snapper, red

Mackerel
Atka 321
king 540, 694
Spanish 530
Macruronus novaezelandiae - *see* Hoki, New Zealand
Marginal increment analysis 530
Mark retention 629
Marlin, striped 360
Massachusetts, Cape Cod 466
Maturity ogive 99
Maturity - *see also* Age at sexual maturity
flounder, arrowtooth 598

kob, silver 51
sole, yellowfin 494
surgeonfish 680
Mean size 403
Megaptera novaeangliae - *see* Whale, humpback
Menhaden, Atlantic 445
Merisitics 785
Merlucciidae - *see* Hoki
Methods
age determination from length 39
assessing dietary niche overlap 722
classifying reproductive condition 80
daily fecundity reduction 576
determining sampling size 403
estimation of mortality rates
Chapman-Robson 863
least-squares 863
genetic 800
in virtual population analysis 280
skeletochronological 849
Mexico 180, 360
Micropogonias undulatus - *see* Croaker, Atlantic
Middle Atlantic Bight 637, 773, 785
Migration 47, 300
Mississippi River 540
Mitochondrial DNA 174, 566, 800
Model
age 39
habitat 504
growth 800
spawner-recruitment 762
stock assessment 149
yield-per-recruit 637
Modeling 637
Morphometrics 311, 394, 785
Mortality 161, 637, 863
rates in VPA's 280
Mouth size 722
Movements 466, 646, 665
Mugil cephalus - *see* Mullet, striped
Mugilidae - *see* Mullet
Mullet, striped 267
Multispecies 114
Myctophidae 334
Myxine glutinosa - *see* Hagfish
Myxinidae - *see* Hagfish

Nephrophidae - *see* Lobster
New Hampshire 414
New York, Hudson River 665
New Zealand 576, 99
Rakaia River 812
Newfoundland 646
Nomeidae 250
Nonlinear estimation 849
Nonparametric smoothing 849
Nordmøre-grid 209
North Carolina 637
Beaufort 477
Nursery areas
juvenile pleuronectids 504
kob, silver 47
snapper, pink 137
sole, English 161
Nutrition 231

Oceanic islands 137
Ommastrephidae 334
Oncorhynchus tshawytscha - *see* Salmon, chinook
Oocyte stages 321, 456, 598
Oregon 293
Coos Bay 25
Otariidae - *see* Sea lion
Otolith
butterfish 785
croaker, Atlantic 773
mackerel, Spanish 530
seabass, white 709
totoaba 620
weakfish 521
Outliers, detection with robust regression 149
Ovary, effects of preservation 869
Overfishing 219, 732

Pacific Ocean
tuna 68, 566
Pacific tuna fisheries 11

Pagrus pagrus - *see* Porgy, red
Parablennius tasmanianus 722
Pelagic fishes 300
Penaeus plebejus - *see* Prawn, eastern King
Peprilus triacanthus - *see* Butterfish, Atlantic
Perch, Pacific ocean 219
Phenotypic variation 1
Physical
environment 376
oceanography 250
Pigmentation 394
Piscivore 665
Pleurogrammus monopterygius - *see* Mackerel, Atka
Pleuronectes
americanus - *see* Founder, winter
asper - *see* Sole, yellowfin
bilineatus - *see* Sole, rock
putnami - *see* Flounder, smooth
vetulus - *see* Sole, English
Pleuronectidae - *see* Flounder and Sole
Poacher, sail-fin 612
Podothecus sachi - *see* Poacher, sail-fin
Polychlorinated biphenyls (PCB's) 231
Polycyclic aromatic hydrocarbons (PAH's) 231
Polymerase chain reaction (PCR) 800
Polyphasic growth 849
Pomatomidae - *see* Bluefish
Pomatomus saltatrix - *see* Bluefish
Population
biology of surgeonfish 680
dynamics
menhaden, Atlantic 445
rockfish 219
growth rate for cod 762
profile for hagfish 311
structure
grouper, red 174
herring, Atlantic 126
tuna, yellowfin 566
Porgy, red 732
Prawn, eastern King 653
Prawn-trawl 209, 653
Preservation 869
Prey
digestibility 386
energy values 360
mesopelagic 334
occurrence 334
size 722
Pristipomoides filamentosus - *see* Snapper, pink
Production
snapper, juvenile pink 137
Protein 431
Proximate composition 431
Pseudogobius olorum 722

Random amplified polymorphic DNA (RAPD) 800
Ration level 431
Ray 349
Recapture rate 267, 466
Recreational fishery 456
Recruitment 250, 773
herring, Atlantic 376
sardine, Atlanto-Iberian 187
Replenishment (marine fish populations) 267
Reproductive biology - *see also* Spawning
bonefish 456
guitarfish, shovelnose 349
hagfish 311
herring, Pacific 748
kob, silver 47
mackerel, Atka 321
porgy, red 732
sole, English 231
swordfish 80
Resource availability 722
Retrospective analysis 445
Rhinobatidae - *see* Guitarfish
Rhinobatos productus - *see* Guitarfish, shovelnose
Rhomboplites aurorubens - *see* Snapper, vermilion
RNA-DNA ratios 431
Robust regression 149
Rockfish
darkblotched 219
rougheye 219
splitnose 219
Roughy, orange 576, 800

Sablefish 293
Sagitta 773
Salinity gradient 414
Salmonidae - *see* Salmon
Salmon, chinook 25, 812
Samoa, American 680
Sampling 403, 477
Sanctuaries 219
Sand lance 826

Sardina pilchardus - *see* Sardine, Atlanto-Iberian
Sardine, Atlanto-Iberian 187
Schooling 300
Sciaenidae - *see* Drum, Croaker, Kob, Totoaba, Seabass, and Weakfish
Sciaenops ocellatus - *see* Drum, red
Scomberomorus
  cavalla - *see* Mackerel, king
  maculatus - *see* Mackerel, Spanish
Scombridae - *see* Tuna and Mackerel
Scorpaenidae - *see* Rockfish
Sea lion, California 180
Sea ranching 267
Seasonal movements 414
Seasonal timing 267
Sebastes
  alascanus - *see* Thornyhead, shortspine
  aleutianus - *see* Rockfish, rougheye
  alutus - *see* Perch, Pacific ocean
  crameri - *see* Rockfish, darkblotched
  diploproa - *see* Rockfish, splitnose
Sediment 504
Sex ratio 837, 47
Sheepshead 394
Shrimp trawls 552
Size-at-release 267
Size-structure 403
Snapper
  red 39
  pink 137
  vermilion 837
Snook, common 873
Sole
  English 161, 231
  flathead 504
  rock 504
  yellowfin 494, 504
South Africa 47
South Atlantic Bight 530, 732, 785
Spain 187
Sparidae - *see* Porgy or Sheepshead
Spatial patterns 219
Spatial variations 694
Spawner-recruitment 762
Spawning - *see also* Reproductive biology
  biomass and hoki 99
  bonefish 456
  butterfish 785
  season and herring 126
  stock structure and swordfish 80
  surgeonfish 680
Species assemblage
  Florida fishery harvest 114
  rockfish 219
Square-mesh panels 653
Statolith 857
Stellwagen Bank 826
Stenella attenuata - *see* Dolphin, pantropical spotted
Stock
  assessment 149, 445
  discrimination 800
  enhancement 267
  interchange 466
  rebuilding 219
  separation 47, 540
  structure 566
Stock-recruitment 762
Stromateidae - *see* Butterfish
Stromateoid 250
Strombidae - *see* Conch
Strombus costatus - *see* Conch, milk
Strombus gigas - *see* Conch, queen
Subtropical 114
Surgeonfish, bluebanded 680
Survey, aerial 300
Survival 812
  mullet, striped 267
  sole, English 161
Swordfish 80, 149
Syngnathidae 722

Tag
  coded wire 873
  double 68, 293
  internal anchor 873
  loss 293
  reporting 68
  retention 293, 873
  seeding 68
  shedding 68
Tag-release-recapture 267, 466
Tagging 466, 646
Tautogolabrus adspersus - *see* Cunner 646
Temperature 161, 762
  effects on red drum growth 431
  pleuronectids and habitat use 504
Temporal variation 694, 837
Tetrapturus audax - *see* Marlin, striped
Thornyhead, shortspine 219
Thunnus albacares - *see* Tuna, yellowfin
Thunnus thynnus - *see* Tuna, bluefin
Torpor 646
Totoaba macdonaldi - *see* Totoaba
Totoaba 620
Trachichthyidae - *see* Roughy
Tracking 646
Triglycerides 231
Tuna
  albacore 869
  bluefin 11, 149, 300
  distributions 11
  prehistoric 11
  tagging 68
  yellowfin 566
Turtle, Kemp's ridley sea 849

United States
  northeast 85
  southeast 732
Urocampus carinirostris 722

Vancouver Island 11
Variability 477
Variation
  allozyme and mitochondrial DNA 566
  in individual flounder 1
Video camera, baited 137
Virginia 773
Virtual population analysis 280, 445

Washington 161, 293
  northern 11, 219
  Puget Sound 231
Weakfish 521
Whale, humpback 826

Xiphias gladius - *see* Swordfish
Xiphiidae - *see* Swordfish

Year-class twinning 126
Yield-per-recruit 637

Zalophus californianus californianus - *see* Sea lion, California
Zooplankton 369, 722